UNITED NATIONS

ECONOMIC AND SOCIAL COUNCIL

Distr.
LIMITED

E/ECA/PSD.3/5
15 December 1983

Original: ENGLISH

ECONOMIC COMMISSION FOR AFRICA

Third Session of the Joint Conference of African Planners, Statisticians and Demographers, Agenda item 6 (b)

Addis Ababa, 5-14 March 1984

The Role of Demographic Variables in the Formulation of Development Policies and Plans

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INTRODUCTION

1. In 1946 the United Nations established the Population Commission. The Commission was to arrange for studies and to advise the ECOSOC (Economic and Social Council) on the following 1/:

(i) the size and structure of population and changes therein:

(ii) the interplay of demographic factors and economic and social factors;

(iii) policies designed to influence the size and structure of population changes therein;

(iv) any other demographic questions on which either the principal or subsidiary organs of the UN or specialized agencies may seek advice.

The establishment of the Commission was due to the recognition of the importance of the role of population variables in socio-economic development. Even as early as 1946, there was no general agreement on population issues in relation to socio-economic development. Today, although the debate on population issues in development still continues, there is more awareness of the effects of population variables on socio-economic development. However, examination of development plans of African countries indicate that the integration of population variables in development planning is rather slow. In Asia too, the Third Asian and Pacific Population Conference held in Colombo in 1982 also indicated that the progress in the integration of population factors in development planning has been slow. The Expert Group on Population, Resources, Environment and Development held in Geneva 25-29 April 1983 also noted the slow progress on integrated development planning.

2. Development planning is intended to satisfy economic and social needs for the population based on available resources and population is also a resource. Since population is the focal point for development planning as population is both an agent for development as well as benefactor of development, it is therefore necessary that population should play an important role in development planning. To achieve this, concerted efforts are required to include popultion variables in the formulation and implementation of development planning. Policies to influence both development and demographic variables shoud be integral components of development planning.

3. This paper attempts to present the role of demographic variables in the formulation of development policies and plans. A historical background to population and development issues emanating from ECA meetings as well as meetings organized by other organizations

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1/ Symonds, Richard, and Carder, Michael.
The United Nations and the Population Question.
McGraw Hill, New York, 1973, p. 44.

but related to Africa will be given first followed by the interrelationships between population variables and development and their consideration for integration. The role of demographic-economic modelling in development planning is also included. A review of existing situation on incorporating population variables in policy and plan formulation including proposals for consideration to enhance the role of population in development planning are given.

HISTORICAL BACKGROUND TO POPULATION AND DEVELOPMENT ISSUES IN AFRICA

4. The Seminar on Population Problems in Africa, held in Cairo in October-November in 1962 noted that rates of population increase might be an obstacle to economic and social progress even for those countries which are considered to be under populated 1/. The Confernnce of African Planners during its second session in 1967, recognized the important relationships between population growth and the overall economic development and it directed the attention of ECA member States to the need for evolving a population policy in their development programmes 2/. Since then, successive meetings continued to call for the need to include population variables in the formulation of development plans.

5. The regional meeting on Technical and social problems of urbanization, held in Addis Ababa in January 1969 recommended that the attention of the meeting of African Planners be drawn to the need of the African countries to adopt population policies in order to mitigate the effects of rapid rates of growth of total and urban population in most of these countries 3/. The Seminar on Application of Demographic Data and Analysis to Development Planning held in Addis Ababa in 1969 discussed the economic and social implications of demographic levels and trends. The seminar urged African countries to bring the phenomenon of urbanization into the main stream of their development plan and to pay more attention to fertility and mortality factors in development planning as these factors determined population size, growth, structure while economic development itself affects their trends 4/.

6. During the Tenth Session of the Economic Commission for Africa 1971 (The First Conference of Ministers), demographic levels and trends of the region were discussed. For the first time, a resolution on Population, Resolution 230X, was adopted; it requested the Executive Secretary as part of the Commission's work programme to carry out a study of population levels and trends in relation to economic and social development 5/.

1/ ECA Position Paper on Population, ECA-PPC/WP, No. 13, 9 June, 1971, p.1.
2/ Ibid. ECA Position paper on Population op. cit. p.2.
3/ Ibid. p.2.
4/ Ibid. p.2.
5/ Ibid. p. 5.

7. The first African Population Conference held in Accra, Ghana, 9-18 December 1971, discussed data collection, analysis and presentation of demographic data as well as its application in economic development planning. The role of population variables was considered important in relation to health, education, land use, agriculture and food supply, industrialization, labour force, resettlement, urbanization, housing, etc. Issues relating to population policy dealt mostly with spatial distribution. There was a call for further awareness among governments of the relation between population and economic growth.

8. The symposium on Population and Development held in Cairo, 4-14 June 1973, addressed itself to the impact of population variables in relation to natural resources, food and agriculture, health, education, employment and social inequality. The Symposium emphasized that the problems posed by development and population are not separate issues and that the understanding of socio-economic determinants of population trends is essential for a further comprehension of the development process. It pointed out that the consideration of the nature and consequences of demographic trends for development is a prerequisite for the formulation of appropriate measures and strategies to improve levels of living 1/.

9. The 1974 World Population Conference which many African countries attended in Bucharest, was followed by regional post conference consultations to arrive at recommendations to reflect regional needs. The African Regional Post Conference Consultation was held in Lusaka, Zambia, 16-22 April, 1975. The Lusaka meeting considered population growth in some cases to have a positive effect on development while at the same time it was recognized that rapid population growth could be an obstacle to development. Recommendations regarding family planning services in maternal and child health programmes, improvement of the status of women through education, employment in modern sector, improvement of rural life through rural development programmes, establishment of economic growth centres, etc. were made.

10. The Organization of African Unity (OAU) in collaboration with ILO organized a sub-regional seminar on "Implication of Rapid Population Growth to Socio-Economic Development with special reference to Labour and Employment Policies", held in Zambia, 23-29 November 1975. Some of the recommendations of the seminar include the following 2/:

(a) The Governments of the sub-region should make every effort in formulating clear-cut and comprehensive population policies:

(b) Countries should see to it that data collected be analysed to get its meaning in relation to planning; its subsequent analysis should therefore be seen as part of the planning process;

(c) Information on family planning be provided as a basic human right on the basis of which couples can freely decide on the number and spacing of their children.

1/ U.N. Report of the Symposium on Population and Development, held in Cairo, 4-14 June 1973, presented as Conference Background paper at the 1974 World Population Conference in Bucharest, E/CONF. 60/CBP/11, 25 March 1974

2/ OAU: Report of the sub-regional seminar on Implication of Rapid Population Growth to Socio-Economic Development with Special Reference to Labour and Employment Policies held at Livingstone, Zambia, 23-29 November, 1975.

11. The Lagos Plan of Action adopted in 1980 by the African Heads of State and Government of the Organization of African Unity calls for the establishment of appropriate machinery to ensure greater integration of population variables in development planning, bearing in mind the expected doubling of the African population between 1975 and 2000 and the impact of this on economic planning and development.

12. During the Inter-Parliamentary Conference on Population and Development in Africa, held in Nairobi, Kenya, 6-9 July, 1981, African parliamentarians discussed issues on population size, growth, structure, population policies, the relation between population and development, population movement in Africa, population education, family health etc. The importance of population variables in development planning was recognized by Conference.

13. At the 9th Conference of ECA Ministers in Addis Ababa in 1983, population issues in socio-economic development were given special consideration. There was general concern about the high rate of population growth resulting in an increasingly young population and high dependency ratio, causing social pressure in terms of unemployment and underemployment and making it increasingly difficult for States to formulate their human resources development policies rationally.

14. Recognizing the important role of demographic variables in development planning, the seminar on use of population data in development planning organized by ECA in Moscow (USSR) for African Planners, 21 August to 2 September 1983, recommended that ECA member States should strengthen the institutional framework to achieve full analysis and utilization of population data in planning. The seminar urged IDEP and the Demographic Training Centres serving Africa to encourage research on integration of population variables in development planning in their training programmes.

15. The above account is not exhausive but it illustrates the importance of population variables in the formulation of development policies and plans. Population growth is not always a complete barrier to economic development. In some cases where economic factors are sufficiently accompanied by technological advancement, socio-economic development would be achieved even in conditions of high population growth. However, such conditions do not seem to exist in most developing countries and especially in Africa.

16. Population issues are sensitive in many of the African countries. It is only recently that in only a few countries there seem to be open discussions on these issues. This may explain partly why most of the recommendations from the meetings reviewed above were of general nature. Because of the lack of openness to discuss populations issues it has not been possible for many of the recommendations to have been implemented.

THE INTERRELATIONSHIPS BETWEEN POPULATION VARIABLES AND DEVELOPMENT AND CONSIDERATION OF THEIR INTEGRATION

17. The need for integrating population variables into development planning and policy formulation arises from the fact that there is a two way relationship between population and development. Population variables affect development and development in turn influences population variables. Population variables may affect directly or indirectly various aspects of a nation's economy, e.g. economic growth, per capita income, labour force participation, employment situation, development of education, health, capital formation, rate of savings, etc. It is, therefore, apparent that policy makers and planners need to be aware of population effects on development when formulating and implementing development plans. At the same time, they should also take into account economic effects on demographic variables. The understanding of the interrelationship between population and development is essential to enhance the role of population in the formulation of development policies and plans.

18. Socio-economic development planning is a continuous process. It should start with assessment of past and current economic, social and demographic situation; then targets should be formulated. Population projections, their impact on the resource base in achieving the targets should then be analysed; policy instruments to help achieve desired targets given constraints on human and capital resources should be adopted. During the implementation phase there should be continuous evaluation and modification of policy instruments if necessary. Therefore, availability of economic, social and demographic data is crucial in policy decisions in socio-economic development planning.

19. In order to appreciate the importance and the role of population variables in the formulation of development policies and plans, the paper next looks at the following sectors - education, manpower and employment, health, food and nutrition, and housing. These sectors have been selected for illustration purposes, it does not mean that those sectors that have not been included are less important.

(i) Education Planning

20. Education statistics show that illiteracy in Africa is very high as reflected in the following examples. In 1980, the proportion of the population illiterate among those 15 years old and above were as follows in the following African countries 1/: Benin 72.1%, Burundi 73.2%, the Gambia 79.9%, Ivory Coast 65%, Mozambique 66.8%, Nigeria 66%, Somalia 93.9%. The net enrolment ratio at primary level (i.e. considering only enrolment relating to primary age groups) for both sexes for African countries shows great variation from country to country as shown below 2/. Botswana 1980, 84%, Burundi 1979, 17%; the Gambia 1980, 44%; Kenya 1978, 66%; Malawi, 1977, 40%; Mauritius 1980,84%;

1/ UNESCO; 1982, Statistical Yearbook
2/ Ibid.

Morocco 1980, 57%, Mozambique 1980, 42%; Senegal 1979, 35%; Somalia 1979, 21%; Swaziland 1979, 80%. In some countries low enrollement ratios are due to the fact that parents do not want to send their children to school. However, the data reflect that a lot of effort and resources are required to provide education to the primary school age population and planners and policy makers have a difficult task in designing education plans in view of limited resources.

21. In every African country universal education at primary level is desirable. Some countries have even policy goals to achieve this. In order to examine the feasibility of attaining this during a given period, it would be necessary to know the resource costs to be involved taking into account the numbers of teachers required, the number of pupils, number of schools, educational materials e.g. books, and equipment. Populttion size and the age of the school age popultion would be particularly important in this exercise. Various alternative projections of school age population and enrolment ratios and teachers required in relation to available resources would give guidance on choice of the targets to adopt. Consideration also need to be taken of the time it takes to train the required number of teachers.

22. The present age structure of the population in Africa has a large proportion of the young i.e. those aged less than 15 years (about 45%). This is mostly due to high fertility rates and short life expectancy. Already a large proportion of the primary school age population in some countries is not able to go to school due to inadequate schools, inadequate qualified teachers and limited financial resources to expand educational facilities and services. It therefore appears that continued high population growth rates are likely to be obstacles to government efforts to improve the quality and to expand educational facilities and services.

23. Though both demographic and non-demographic variables contribute to educational costs, it has been shown that in a number of countries the contribution of population growth to the increase in recurrrent costs of primary education over a 20-year period has been found to be of the order of 50-70 per cent; if capital costs were added the share would even be higher 1/.

24. Gavin Jones has shown that in a case where enrolment rises from 40 per cent to 95 per cent in 30 years under high fertility conditions, demographic factors alone contribute 30.9 per cent to the increase while a rise in enrolment alone contributes 26.6% 2/. A case study

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1/ Cassen, Robert and Wolfson, Margaret, editors, Planning for Growing Population, OECD; Paris, 1978, p. 17.

2/ Jones, Gavin, Population Growth and Educational Planning in Developing Nations, Livingston Publishers, Inc. New York, 1975, p.73.

on Tanzania to achieve universal admission to first level education in 1989 from the base year 1967 showed that the total cost would increase more than 8 times during the 22 years, i.e. at a compound increase of about 10 per cent per annum 1/.

25. Governments would need to consider the reduction of high fertility and population growth rates as a means of complementing government efforts in socio-economic development aimed at increasing enrolment ratios and expanding educational services and facilities.

26. Improvement of women's education has an effect on fertility. There has been signi-$ ficant evidence from various studies which indicate that increasing education, particularly of women, has significant effect on reduction of fertility, improvements in health and nutrition. The effect of women's education on reduction of fertility works in relation with many other factors e.g. delayed marriage, employment particularly in the modern sector.

27. In formulating policies designed to reduce fertility, it should be noted that a decline in fertility will taken about 6 years to have its effect on primary education costs, and 12 years for secondary education intake. If governments would desire to reduce fertility and population growth, they would need to formulate policies on family planning programmes in relation to mother and child care programmes in health policies intended to improve the status of women in education and employment in the modern sector; health policies to reduce infant and child mortality in particular and mortality in general; and, policies aimed at improving the general life of the majority of the population in the rural areas.

(ii) Manpower and Employment Planning

28. Increase in population growth normally leads to an increased population in the labour force. Thus, employment opportunities should be created to absort the increase in the labour force. The population must have adequate opportunities to work so as to earn a living. Rapid population growth in the light of slow expansion in employment opportunities retards economic growth and frustrates government efforts in creating new jobs. It also contributes to poverty and inequality.

29. In manpower planning which deals with the supply and demand of the labour force, past and future fertility trends play an important role in the future labour-force size. It is therefore necessary when formulating policies for future labour force requirements to consider the effects of fertility.

30. Growth of employment is affected by both the size and growth of population on the one hand and the level of investment generating employment on the other hand. It should be noted, however, that investment is in turn influenced by the propensity of the population

1/ UNESCO, Ta Ngoc Chau and Francoise Caillods, "Tanzania: A Case Study" in Population Growth and Costs of Education in Development countries, Paris, 1972, p.220.

to save or to consume the income generated. In most African countries, the propensity to save is marginal and the persistent high dependency ratios seriously affect the propensity to save.

31. Manpower planning has to be undertaken in relation to the development of education. The education system should therefore be geared to train and educate the young population to be able to find gainful employment in the economy. In the case of Africa, there should be bias towards preparing the young population to work in agriculture since this is the backbone of the economy in most of the African countries. To help adaptation of technology as well as introduction of new innovations and technology to suit local conditions, particular emphasis should be given to science subjects in the education system to be able to provide the needed local personnel in high level occupations for which reliance has been till now on expatriates in some of the countries in some of the occupations e.g. doctors.

32. In the past as well as at present, most of the population in Africa flock to urban areas to seek employment or to get education since the urban centres in nearly all African urban centres are thought to have better services. The trend of rural to urban migration to seek employment continued despite the unavailability of employment opportunities. In some countries, even university graduates find it difficult to find employment in urban areas. Unemployment therefore become one of the most serious problems in urban areas. Due to wage differentials between rural areas and urban areas most people in the rural areas believe that life in the urban centres is much better even though in actual fact it is not. Thus continued migration from rural to urban areas puts considerable strain on urban infrastructure and services.

33. Population pressure on some of the towns made it extremely difficult to improve or expand services. Consequently, some governments decided to move their capital cities to new growth points in an attempt to resolve some of the population problems. These countries include Malawi, Tanzania, Nigeria and Ivory Coast. One of the effects of rural migration to urban areas is that the rural areas lose some of the able bodied people who should be producing food in the rural areas. Thus, decline in food production in some cases has been contributed to the migration of the population to urban areas.

34. Some of the issues to be taken into account in formulation of objectives and policies of the development plans should be creation of employment opportunities related to agriculture in rural areas and to reduce wage differentials between rural and urban areas. Integrated rural development programmes should be encouraged. Policies intended to influence migration away from crowded urban centres should be adopted and implemented. Reduction of population growth should also be considered in planning for employment and manpower planning. It should be noted however that the effects of reduction of fertility on the labour market will be felt 15-20 years later. Projections of manpower needs and working age population should be used in planning.

(iii) Health planning

35. As health conditions improve through better health services, mortality and morbidity would be reduced and consequently population growth would initially increase assuming that fertility remains constant or continues to increase. It should be noted also that rapid population growth creates greater demand for health services. However, in the long run improvements in health and through family planning programmes, if properly integrated in the health services, would reduce population growth. Should population growth exceed the rate at which medical and health services are able to expand, it would be expected that the health conditions of the population would deteriorate. Moreover, high fertility rate and births at short intervals contribute to high risks of maternal and child mortality, as well as to poor malnutrition problems among the mothers and children particularly in poor familiies and where food supplies are generally inadequate.

36. In formulating population policies related to family health activities in development plans it is therefore necessary to include the following goals agreed upon among the African Parliamentarians during the Parliamentary Conference on Population and Development in Africa held in Nairobi in 1981 1/.

(a) The population should be assured of a sanitary environment, including access to a safe supply of water.

(b) The population should have relevant education.

(c) The population should have access to food of sufficient quality and quantity.

(d) Medical care should be available with emphasis on pregnant and nursing mothers, children and infants.

(e) Access to fertility regulation services should be ensured.

37. To meet these goals, the Conference indicated that Governments have to evolve programmes of primary health care, as agreed at the Alma-Ata Conference in 1978 which are completely decentralized and under the administrative control of the populations to be served.

(iv) Food and Nutrition in Planning

Adequate food supplies in both quantity and quality is a basic essential for human physical development and survival. In a number of African countries food production has declined significantly in the past decade or so and population has grown much faster than food supplies. This has had a significant **deterimental** effect on the health of the population through inadequate nutritional requirements resulting into higher morbidity and mortality especially of infants, children, nursing mothers and pregnant women. Improvement in food supplies and nutritional requirements would help reduce infant and maternal

1/ Inter-Parliamentary Union: Conclusions and Recommendations of the Parliamentary Conference on Population and Development in Africa, Nairobi, 6-9 July 1981.

mortality, morbidity rates and improve the general health of the population. It is necessary that improvement in food production should be accompanied by equitable income distribution among the population as well as development of mechanisms for food distribution to reach the population who need it.

39. It should be noted that the World Population Plan of Action indicated the need to give particular consideration to all aspects of the supply of food in the formulation of national population goals 1/. Furthermore, the World Food Conference recognized the need to achieve a desirable balance between population and food supply. The conference called upon Governments and people every where to grow, and equitably distribute, sufficient food and income so that all mankind may have adequate diet while at the same time supporting national policies 2/.

40. Some African Governments are already experiencing pressure on agriculture land as a result of continued population growth. However, in other countries, there is still great potential to increase expansion of cultivable land to produce food crops. In addition to non demographic policies intended to increase food production, these should be complemented with policies wherever necessary as recognized by the President of Zambia when he said that population should be controlled in view of the limited food supply 3/. Lowering of population growth *per se* is not a sufficient factor in its own in solving the food and nutritional problems unless it is combined with economic policies, political will and strategies designed to improve the food situation. Introduction of improved agricultural methodologies, provision of higher prices to farmers, extension services to farmers, provision of credit facilities to farmers for farm inputs, improvement in transport net work, and education in the rural areas, reform in land tenure systems and expansion in agricultural land would contribute significantly to increase in food production. However, reduction of population growth renders the task of solving the food problem less difficult.

41. Governments should strive to increase food production at rates far much greater than population growth rates. In addition, African countries should concentrate on growing food products which can best be grown in Africa and to re-orient the consumption patterns of the population to locally grown food stuffs as opposed to foreign grown food stuffs. There should be educational programmes aimed at improving the nutritional requirements of the population. Policies aimed at rural development programmes in relation to agriculture

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1/ Report of the United Nations World Population Conference, 1974, para. 14 (J).

2/ UN: Report of the World Food Conference, resolution IX, 5-16 November, 1974 held in Rome.

3/ IPPF Open File, Three Weeks Ending 30 March 1983, p. 34.

should improve the food situation. Moreover, there is need to tailor the education systems in African countries so that the young population should remain in the rural areas instead of flocking to urban centres to join the ranks of the unemployed.

(v) Housing Planning

42. Housing constitute one of the basic human needs and should therefore be given adequate attention in both rural and urban development planning. In the past planners have not paid due attention to housing planning and whatever housing were developed in urban araas did not seem to have taken into account the population needs and their ability to pay rent for such housing and consequently governments have had to subsidize significantly the rents for their employees. The development of slums in or around urban centres is a reflection of inadequate housing supply to meet population needs.

43. Population factors like population size, age, sex, rate of household formation and dissolution and migration all affect the demand for housing. Since low incomes prevent most of the population in urban areas to afford reasonable housing, the low income population resort to building their own housing which are of substandard and without adequate sanitary services. The crowdness of the population and the absence of satisfactory sanitory and other social amenities has significant deterimental effect on the well being of the population, particularly the health of the population. Continued migration to urban areas and natural increase in the urban centres in the face of low incomes, slow the increase in urban housing development. Insufficient capital for housing development and continuing price increases of materials for housing development agrevate the housing situation and accelerate the development of slums. Lusaka town is one of the many examples - it's squatter population was estimated to have increased from about 10% of the city's population in 1963 to 47% by 1973 1/.

44. Improvement in housing conditions, and improvements in adequate income distribution through creation of employment opportunities and improvements in health and nutrition requirements will have a positive effect in increasing the well being of the population. The population would be healthier, and hence be in a position to contribute more to production of goods and services in the national economy.

THE ROLE OF POPULATION AND DEVELOPMENT MODELS IN PLANNING

45. The purpose of population and development models is to take population factor into account in development planning and to indicate the impact of population on labour force, demand for jobs, education, health, housing resources, etc. Alternative models would give an indication of cost and benefit effects of different population prospects and trends

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1/ Cassen, Robert and Wolfson, Margaret, editors, Planning for growing population, OECD; Paris 1976, P. 111.

in relation to development objectives adopted. Thus, these models, though not very precise, would guide in the formulation of appropriate population policies that would help achieve desired socio-economic development objectives.

46. To improve the linkages between population and development may require the use of population and development models. Unfortunately these models are still in their early stages of development and are not used much in decision making. Weak emperical basis for many key relationships between social, economic and demographic variables is an important factor limiting the use of population in development models..... a better understanding of the linkages between these variables could materially assist countries in improving the quality of planning and policy decisions 1/.

47. Demographic variables e.g. the age structure of the population, affect the levels of consumption, labour force, demand for education, housing, health services. Policy formulation and planning would therefore require disaggregated projections of population variables. Population in development modelling should take into account the effects of technological changes on population variables.

48. Development plans are usually for periods up to 5 years and the economic impact on demographic variables is generally not significant and consequently some planners may not consider the importance of influencing demographic variables. Since the five year development plans follow each other in succession, eventually the long-run period is entered without demographic variables being considered in the long term period of development - where population variables become very crucial.

49. Some population models for some countries outside Africa have shown that the advantage of fertility reduction amounts to a per capita income advantage of approximately 3-5 per cent after 10 years, 15-25 per cent after 20 years, and 25-50 per cent after 30 years, thus demonstrating that it is an important development variable 2/.

50. Although demographic - socio-economic models have not been sufficiently developed for application in policy formulation and decision making in development planning, they certainly have an imprtant role to play. Further research is required in these models.

51. Though this paper is not intended to dwell on population and development models, it might be useful to list some of these and make some reference where details would be found. These models include the following: BACHUE models, TEMPO models, LRPM (Long-run planning models), the Philippine ERAIEDR model, FAO model, SERES model, SIMON model and Denton-Spencer model 3/. Some of these models are briefly described below.

1/ UNFPA: Population and Development Modelling, New York, 1980, p.37

2/ OECD: Theodore K: Ruprecht and Carl Wahren, Population Programmes and Economic Social Development, Paris 1970, p.20

3/ More details on these models and further references are found in United Nations: Population and Development Modelling, Proceedings of the United Nations/UNFPA Expert Group Meeting Geneva, 24-28 September 1979, New York 1981.

52. **BACHUE MODELS:** These models are being developed by ILO and specific country models have been developed for the Philippines, Kenya, Brazil, Yugoslavia and another one has been developed as a multi-purpose model called BACHUE-international. These models try to explain the interaction between population, employment and inequality. Both demographic and economic variables are considered as endogenous and these variables are also disaggregated in the sub models.

53. TEMPO MODELS - there are TEMPO-I and TEMPO-II series which have been developed. In the first one which illustrates the benefits of reduced fertility, economic variables are influenced by demographic variables. TEMPO-II takes into account projections and there are three components in the model - demographic, economic and government that are involved in the interaction. The economic and demographic sub-models are divided into modern and subsistance sectors. The government submodel deals with expenditures, revenues and policies.

LONG-RUN PLANNING MODELS (LRPM): LRPM-1 was developed by the United States Bureau of the Census in 1971 for use in preparing quantified perspective national plans. The implications of alternative demographic and social service policy assumptions were illustrated in the model. The LRPM-II, an extension of LRPM-I, has 8 submodels which can either be run separately or as a unit. The submodels incorporate demographic projections, family planning, urbanization, labour force, education, health, housing and economic projections.

54. THE FAO MODELS - These models were developed to show the interaction between economic and demographic variables with special reference to the agricultural sector. The submodels include agriculture, population, the labour force and the economy. Each of these submodels deals with a number of disaggregated variables. From the implication and consequences of the interaction between population and socio-economic development, planners and policy makers are expected to tailor the desired strategies for development planning.

EVALUATION OF THE USEFULNESS OF SOME OF THE MODELS IN POLICY FORMULATION

55. Mr. Moreland 1/ in his evaluation of selected demographic development models concluded that it was difficult to decide on a best model since each of the models was developed based on different situations and for particular focus of interest. Moreland stressed that as any model must be selective in terms of which areas to include and which areas to exclude, none of the models can claim to be truly comprehensive and yield meaningful results. The comparative usefulness of some of the models in policy as analysed by Moreland is presented in the table below. Moreland indicated that there is a degree of subjectivity in the evaluation especially in cases where a policy area does not exist but could do so with modification.

1/ R. Scott Moreland "A review of Economic-Demographic Simulation Models with special reference to their Application to Planning and Population Policy". In Population and Development Modelling, Proceedings of UN/UNFPA Expert Group Meeting Geneva, 24-28 September 1979, United Nations, New York, 1981.

A GUIDE TO THE POLICY USEFULNESS ON SELECTED MODELS
(For key to symbols, see below)

	Policy area											
	Education	Housing	Health services	Family Planning	Manpower	Employment & Unemployment	Food & Nutrition	Poverty & income distribution	migration	Population projections & vital rates	Macro-economic variables	Prices
BACHUE Philippines	P	M	M	M	P	E	M	E	E	E	P	P
BACHUE Kenya	P	P	M	M	P	E	P	E	P	E	E	O
BACHUE Brazil	P	M	M	M	P	E	M	E	E	E	E	O
BACHUE Yugoslavia	P	E	E	M	P	E	M	E	E	E	E	M
BACHUE International	P	O	M	M	M	P	M	E	P	P	E	P
TEMPO.11	P	M	E	P	P	M	M	O	P	M	P	P
LRPM-2	E	E	E	E	P	M	P	O	M	P	P	O
Philippines SRA/IEDR	P	M	P	E	O	M	M	O	O	E	P	O
FAO	M	O	M	M	O	P	P	O	P	E	E	O
SERES	P	M	P	P	P	M	M	E	P	E	E	O
SIMON	O	O	M	M	O	M	O	O	M	M	P	O
Denton-Spencer	M	P	P	M	M	M	M	O	M	P	P	O

1. E: The policy area is modelled and could be used by policy makers as the model stands. Key variables are endogenous;
2. P: The policy area is only partially modelled and/or the model could be modified to include it with only slight modifications;
3. M: The policy area is not modelled but could be included with a moderate modification of the current model;
4. O: The model does not include the area and its inclusion would not be possible without a substantial modification of the existing model.

Source: United Nations, Population and Development Modelling. Proceedings of the United Nations/UNFPA Expert Group Meeting Geneva, 24-28 Sept., 1979, New York 1981.

A REVIEW OF THE EXISTING SITUATION ON INCORPORATION OF POPULATION VARIABLES IN THE FORMULATION OF DEVELOPMENT POLICIES AND PLANS:

56. There are many problems in integration of population variables in development planning in Africa. These problems include: (a) Inadequate understanding of the population-development interrelationship and lack of recognition of population as an important variable in development by some countries. In many cases, development problems are viewed as emanating from lack of money and not related to population growth. (b) planners may not have data on population to use, or the data may not be in the form required by the planners. The paper on African Statistical Services presented to this conference discusses the need for further improvements in data collection, analysis and their application to development planning. To this effect the ECA Conference of Ministers, at its Ninth Meeting in Addis Ababa in 1983, adopted resolution 469 (XVIII) on African Statistical Services. (c) Lack of well developed institutional framework for the integration of population variables in development planning. (d) Lack of the necessary skills among the local personnel in handling population data in planning as well as lack of well developed methodologies on the integration of population variables in development planning.

57. The UNFPA population needs assessment missions undertaken in some African countries also confirm the general problems mentioned above. The Expert Group Meeting on Population, Resources, Environment and Development held in Geneva, 25-29 April 1983, in preparation for the 1984 International Conference on Population, also highlighted similar problems.

58. The limited use of population variables in the formulation of development policies and plans is illustrated clearly in the United Nations Fund for Population activities Reports of missions on needs assessment for population assistance to many of African countries where such missions have been undertaken. Senegal, Kenya and Burundi are given as examples below.

Senegal

59. The UNFPA needs assessment mission for population assistance to Senegal had this observation: Although the Senegalese Government recognizes the pressing population problems .... the (fifth national development plan (1977-1981) does not incorporate population objectives. Of course, efforts are being made to relieve individual symptoms but there is no integrated approach relating rates and patterns of population growth to social and economic development 1/.

Kenya

60. In the 1974-78 development plan, the Government of Kenya clearly expressed concern regarding the adverse consequences for economic development arising from the high rate of population growth. However, in formulating the 1974-78 development plan, the sectoral

1/ UNFPA: Senegal, Report of mission on needs assessment for population assistance, New York, July 1978, p. 16.

ministries made only limited use of population data and made virtually no attempt to assess systematically the two-way relationships between demographic and economic factors 1/.

Burundi

61. The demographic component was not integrated in the first two five-year development plans (1968-77) and no demographic target was fixed. Population was considered only from the point of view of density within the national territory 2/. The third plan (1978-82) has not integrated demographic components to any great extent in the over-all policy for economic and social development than the first two five year plans 3/.

62. One of the actions required is to make policy makers, planners, and the population in general to understand and appreciate that population variables and socio-economic development influence each other. This can be done by organizing workshops or seminars at national and subnational levels to discuss how population variables affect government expenditure with respect to various sectors of planning e. g. education, health, housing, employment, food production, the extent to which governments are able to meet basic needs for the population e.g. provision of clean water, employment, adequate health facilities and services, education; how lower rates of population growth would affect development in general. Though it is rather difficult to evaluate the impact of seminars, workshops and case studies conducted in the past, it would appear that the projects being carried out now in some of the countries as shown in Annex I on population and development are partly as a result of the impact of these seminars. It would be urged that there is need to intensify the seminars, workshops and case studies on population and development to accelerate their impact on socio-economic development planning.

63. Another action required is to train those involved in planning how to use population data in development planning. Within the planning ministries and departments, there should be population units to be responsible for the study of socio-economic and demographic interrelationships, population policies, and the integration of population variables and policies into development plans. Some African countries have recently established such units and it is too early to evaluate their impact. Other African countries are now considering to establish these units. There should be consultation among planners, demographers and statisticians on matters of common interest. There should also be consultation between policy makers and technicians. Where it is not possible to have demographers in the planning units, guidelines should be given to planners on the integration of population factors in development planning.

1/ UNFPA: Kenya, Report of mission on needs assessment for population assistance report No. 15, New York, June 1979, p. 53, para. 158.

2/ UNFPA: Burundi, Report of mission on needs assessment for population assistance, report No. 27, New York, November 1978, p.14

3/ Ibid. p. 14.

64. Furthermore, there is need for governments to improve planning at local level and to encourage local participation. This would encourage long-term planning at local level and to take into account population variables in long-term planning. Finally governments should take appropriate measures to adopt specific policies on population issues which affect development e.g. population distribution, mortality, fertility and urbanization, and implement such policies as an integral part of socio-economic development.

CONCLUSION

65. In the long term as well as short term planning, there is need to take into account demographic variables in the formulation of development policies and plans since population variables have significant impact in the development of education, health facilities and services, provision of employment opportunities, urban development, food production etc. Development itself also affects demographic variables in many different ways.

66. Some African countries have recognized the important role of population in the formulation of development policies and plans as is evident from the data shown in Annex I. In addition, some countries like Kenya, Nigeria, Senegal and Sierra Leone have established population commissions to handle population issues as they relate to socio-economic development. Such developments in population and development in some of the African countries have taken the right direction to enable population variables to be incorporated in the formulation of development policies and plans. UN and International assistance to African countries need to be strengthened in the area of population and development, and their integration.

67. The following areas need particular emphasis in African countries to help improve the formulation of development policies and plans:

- consideration of population projection by sex and various age groups e.g. school age population, working age-population etc., and taking into account their implications.
- Improving the institutional framework for the integration of population variables into development planning; and training the personnel involved in planning how to handle population variables in planning,
- need to devise methodologies on integration of population variables in development planning,
- improvement in population and related socio-economic information for planning.

68. In discussing this paper the Joint Conference may want to suggest or recommend a course of action, if any, that should be followed to enable member States incorporate population variables and policies in the formulation and implementation of socio-development programmes.

ANNEX 1

SOME PROGRAMMES IN SOME AFRICAN COUNTRIES INTENDED TO HELP THE INTEGRATION OF POPULATION VARIABLES IN SOCIO-ECONOMIC DEVELOPMENT 1/.

(dates indicate year of original allocation of funds or when the project was executed)

Cameroon: Establishment of a Population Planning Unit in the Ministry of Planning, 1982, with ILO assistance.

Congo: Population and family life education in women's programme, with ILO support 1976.

Egypt: Population Movement and Intersectoral Labour Mobility in Comprehensive Employment Planning, with ILO support, 1979.

Guinea-Conakry: A national Seminar on Population and Development was held in Conakry in September 1980 with assistance from ECA and ILO.

Ivory Coast: A national Seminar on the Interrelationship between population growth and Development was held in December 1982 with assistance from ECA.

Kenya: Integration of population factors into rural development activities with assistance from FAO, 1978.

- Research and training on the use of population data in economic and social planning, 1978.
- Consultancy services for the establishment of National Council on Population and Development, 1982.

Lesotho: National Conference on Population Management for Development, 1979.

- A national seminar on population planning for development, August 1982.
- Incorporation of population education into rural development programmes with FAO assistance, 1981.

Mali Women and population: research, education and information programme, with assistance from UNESCO, 1979.

- A national seminar on interrelationship between population growth and development was held in 1983.

1/ UNDP: Other Funds and Programmes, UNFPA Report of the Executive Director on Allocation of Funds in 1982, doc. DP/1983/19/ADD 2, 1 March 1983; and other sources.

Mali:	Project on establishment of a population planning Unit in the Ministry of Planning, 1982, with ILO assistance.
Sao Tome & Principe:	National Seminar on the interrelationship of population growth and development, with UNFPA assistance, 1981.
Senegal:	Project on Population Communication Unit, with UNESCO assistance, 1982.
	--Establishment of a Population Unit, 1979, with UN assistance.
Sierra Leone:	Integration of population education into school curricula with UNESCO assistance, 1977. Integrated population and development planning 1978, with assistance from ILO.
Sudan:	(Juba): Population and Human Resources Development and Planning in Southern Sudan, with ILO support, 1979.
Swaziland:	Incorporating population education into rural development programmes, 1976, with assistance from FAO.
Tanzania:	Population/family life education and communication and applied research in integrated rural development (FAO) 1977.
	- National Seminar on Population and Development was held in 1980 with assistance from ECA/ILO.
	- Population Studies for Dodoma, 1981.
	- Research on the interrelationship of population and development, 1981.
Upper Volta:	Population and development planning with UN assistance, 1979.
Zambia:	Incorporating population education into rural development programmes 1979, with FAO assistance.
Zimbabwe:	A proposal has been made to establish a population unit within the development planning structure and UNFPA is expected to finance the project.